APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/430,747	10/29/1999	MIN-CHEOL HONG	0630-1005P	7701

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EXAMINER
DANG, DUY M

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-27* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-4,9-12,19-22 and 27* is/are rejected.

7) ☒ Claim(s) *5-8,13-18 and 23-26* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1.   The disclosure is objected to because of the following

informalities:

In page 2: line 17, the "information(p=mtype" should be

read as "information (p=mtype" (note that a space is needed to

separate the "information" and "(p=mtype"); line 18, the

"information(qz=Qp" should be read as "information (qz=Qp" (note

that a space is needed to separate the "information" and

"(qz=Qp"); line 19, the "decoder(not shown" should be read as

"decoder (not shown" (note that a space is needed to separate

the "decoder" and "(not shown"); and line 20, the

"information(v=MV" should be read as "information (v=MV" (note

that a space is needed to separate the "information" and

"(v=MV").

Likewise, in page 3: the "images(for example" mentioned in

line 10; page 4, the "selecting(filter mask" mentioned in line

14.   The same informalities are occurred all over the place and

thus Applicant's appropriate correction is required.

Equation (10) shown in pages 16-17 contains a mathematical

symbol (i.e., the equal sign having one dot above and one dot

under) which is unknown or improper. Likewise, said mathematical

symbol is further present in equation (25) shown in page 29.

2.   Claims 18, 22, and 27 are objected to because of the
following informalities: In claim 18, line 1, add a space
between "18.The"; In claim 22 line 5, replace "PCT-processing"
by "DCT-processing"; In claims 20 line 4 and claim 27 line 4,
replace "qnautized" by "quantized". Appropriate correction is
required.

3.   The following is a quotation of the first paragraph of 35
U.S.C. 112:

> The specification shall contain a written description of the invention, and
> of the manner and process of making and using it, in such full, clear,
> concise, and exact terms as to enable any person skilled in the art to
> which it pertains, or with which it is most nearly connected, to make and
> use the same and shall set forth the best mode contemplated by the inventor
> of carrying out his invention.

4.   Claims 1-27 are rejected under 35 U.S.C. 112, first
paragraph, as containing subject matter which was not described
in the specification in such a way as to enable one skilled in
the art to which it pertains, or with which it is most nearly
connected, to make and/or use the invention.

     In this case, the features of "obtaining a regularization
parameter variable" recited in claim 1 lines 7 and 10 is not
properly provided support by the instant specification because:
according to equation (10) shown in page 16, the mathematical
symbol (i.e., the equal sign having one dot above and one dot
under) presented between the two terms on the right side of the
"equation (10)" is not defined or described what it is. Since

said symbol is not defined, how can the "equation (10)" be

solved? Thus, how can the so called "regularization parameter

variable" be evaluated based on "equation (10)"?

Likewise, claims 12, 19-20, 22, and 27 are also rejected

for the same reasons as applied to claim 1 above because the

"regularization parameter variable" is recited in these claims.

Claims 2-11, 13-18, 21, and 23-26 are rejected for being

dependent upon the rejected based claims.

5.   The following is a quotation of 35 U.S.C. 103(a) which

forms the basis for all obviousness rejections set forth in this

Office action:

> (a) A patent may not be obtained though the invention is not identically
> disclosed or described as set forth in section 102 of this title, if the
> differences between the subject matter sought to be patented and the prior
> art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the
> art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

6.   Claims 1-4, 9-12, 19-22, and 27 are rejected under 35

U.S.C. 103(a) as being unpatentable over Liang et al. (US Patent

No. 5,790,131).

Regarding claim 1, Liang teaches a method for recovering a

compressed motion picture comprising the steps of:

defining a cost function (i.e. the "cost function C"

mentioned in col. 8 line 50; the cost function "ΔC" mentioned in

col. 3 line 14) having a smoothing degree of an image (i.e., and

the distortion difference "(D_1-D_2)" mentioned in col. 3 line 14;

also the "distortion measurement D" (It is also called "error

measure" according to col. 8 lines 51-54) mentioned in col. 8

lines 50-51 (note that the so called "smoothing degree" is

defined as a difference according to instant specification) and

a reliability with respect to an original image in consideration

of the directional characteristics of the pixels which will be

recovered and a plurality of pixels near the recovering pixels

(i.e. the "$\lambda(R_1-R_2)$" mentioned in col. 3 line 14 and "λR"

mentioned in col. 8 line 50 satisfy these so called "a

reliability");

obtaining a regularization parameter variable having a

weight value of a reliability with respect to an original image

based on the cost function (i.e. the "λ" mentioned in col. 3

line 14 and lines 25-35 satisfies these claimed features).

Although Liang does not explicitly teach the features of

"approximating the regularization parameter variable", Liang

does teach the use of "various values of λ" in order to obtain

the best result from the cost function according to col. 3 lines

25-38.

Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to readily

understand that the use of various values of λ in order to

obtain the best result from the cost function is equivalent to

the so called "approximating the regularization parameter

variable".

The advanced statement as applied to claim 1 above are

incorporated hereinafter. Liang further teaches another cost

function (note the "ΔC" mentioned in col. 3 line 14 is the

difference between the two cost functions or the cost

differential according to col. 31 lines 14-15 thus Liang does

inherently teach "another cost function" in order to obtain cost

differential "ΔC") as required by claims 2-3; an image decoding

unit (i.e., the "decompression" mentioned in col. 4 lines 58-59)

as required by claims 20 and 27.

The advanced statement as applied to claim 1 above are

incorporated hereinafter. Regarding claims 12 and 19, Liang

further teaches DCT and quantization (i.e., the "DCT method"

mentioned in col. 1 lines 17-18 and "quantization" mentioned in

col. 1 line 19), data blocks (i.e., "blocks" mentioned in col. 1

lines 22-23), transmitting (i.e., "transport" mentioned in col.

1 lines 57-58, and "transfer" mentioned in col. 1 line 66 to

col. 2 line 1), motion vector information (i.e., "motion

compensation method" mentioned in col. 1 lines 17-18), reversely

quantization and reversely DCT processing (note that these

claimed features are inherently taught by Liang's decompression

process mentioned in col. 4 line 58 in order to decompress

properly the data compressed), and recovering an image similar

to the original image (i.e., the decompressing method mentioned

in col. 4 line 58). Liang fails to explicitly teach a

projection method. However, such projection method is well

known in the art (Official Notice). By using projection method

would greatly allow improvement in blocking artifacts thereby

achieving higher image quality and resulting in better image in

both visually and objectively.

Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to

incorporate the conventional features in combination with Liang

for that reasons.

Regarding claims 4, and 9-11 the limitations of the claim

is rejected because it is well known and widely used in the art

(Official Notice).

Regarding claim 21, Liang further teaches a DCT unit for

performing a DCT (i.e., the DCT method mentioned in col. 1 lines

17-18), a vector projection unit for projecting a recovering

pixel in accordance with a pixel value after the DCT process is

performed (i.e., "motion compensation method" mentioned in col.

1 lines 17-18), and an IDCT unit (note that this claimed feature

is inherently taught by Liang's decompression process mentioned

in col. 4 line 58 in order to decompress the data compressed

properly).

The advanced statement as applied to claim 1 above are

incorporated hereinafter. Regarding claim 22, Liang further

teaches DCT and quantization (i.e., the "DCT method" mentioned

in col. 1 lines 17-18 and "quantization" mentioned in col. 1

line 19), data blocks (i.e., "blocks" mentioned in col. 1 lines

22-23), transmitting (i.e., "transport" mentioned in col. 1

lines 57-58, and "transfer" mentioned in col. 1 line 66 to col.

2 line 1), motion vector information (i.e., "motion compensation

method" mentioned in col. 1 lines 17-18), reversely quantization

and reversely DCT processing (note that these claimed features

are inherently taught by Liang's decompression process mentioned

in col. 4 line 58 in order to decompress properly the data

compressed), and recovering an image similar to the original

image (i.e., the decompressing method mentioned in col. 4 line

58).

7.   Claims 5-8, 13-18, and 23-26 would be allowable if

rewritten to overcome the rejection(s) under 35 U.S.C. 112,

second paragraph, set forth in this Office action and to include

all of the limitations of the base claim and any intervening

claims.

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. De Hann et al. (US Patent No. 6,385,245), Pearson (US Patent No. 6,195,632), de Queiroz et al. (US Patent No. 6,058,210), Legall (US Patent No. 5,878,166), Szeliski et al. (US Patent No. 5,611,000), Chen et al. (US Patent No. 5,563,813), Yang et al. ("Iterative Projection Algorithms For Removing The Blocking Artifacts OF Bock-DCT Compressed Images", IEEE 1993, pages: V405-V408), and Zakhor ("Iterative Procedures for Reduction of Blocking Effects in Transform Image Coding", IEEE Transactions on Circuits and Systems for Video Technology, Vol. 2, No. 1, IEEE March 1993, pages: 91-95) are the examples of the same field of invention.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duy M Dang whose telephone number is 7033051464. The examiner can normally be reached on Monday-Thursday from 6:30AM-5:00PM.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 7033054706. The fax phone numbers for the organization where this application or proceeding is assigned are 7038729314 all communications.
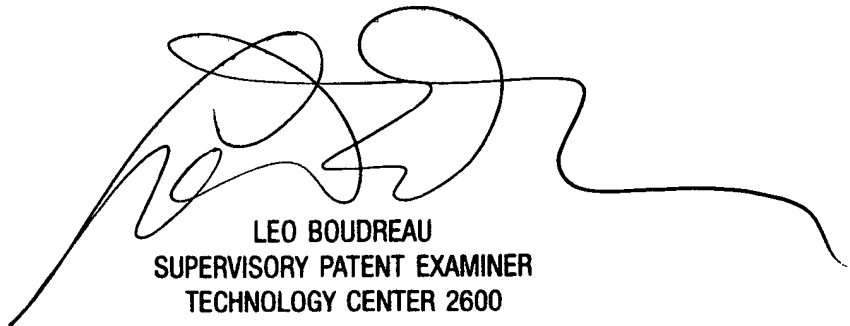
Any inquiry of a general nature or relating to the status
of this application or proceeding should be directed to the
receptionist whose telephone number is 7033060377.

dmd
6/25/02

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